

PRELIMINARY STUDIES ON THE MECHANICAL HARVESTING OF CASSAVA ROOTS IN NIGERIA

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SUMMARY

A mould board plough and a ridger exposed respectively approximately 75 and 81 percent of the roots of cultivar 53101. With either implement, about 40 percent of the roots were damaged and some were buried by the overturned soil. The third method using a ploughshare resulted in less, though still considerable root damage.

RESUME

Une charrue à versoir et une billonneuse ont déterrés respectivement 75 and 81 pour cent environ de racines du cultivar 53101. Dans chaque opération 40 pour cent environ des racines ont été endommagées et certaines enfouies dans le sol. L'incorporation de soc à la charrue a limité les dégâts, mais de façon très peu sensible.

RESUMEN

Un arado de vertedera y un bordeador expusieron respectivamente 75 y 81%, aproximadamente, de las raíces del cultivar 53101. Con cualquiera de los dos un 40% de las raíces sufrieron daños y algunas fueron enterradas con el suelo volteado por los implementos. El tercer método, utilizando un arado de doble vertedera dañó menos las raíces, si bien que este daño aún fué considerable.

INTRODUCTION

Production of cassava in Nigeria is entirely manual from stem cutting, planting and weeding to tuber harvesting. It has been estimated that digging up the tubers alone during harvesting accounts for over 40 percent of the total cost of production⁴.

There are three major problems involved in the mechanization of cassava root harvesting. These are:

1. The clearing of the above-ground parts of the plant.
2. Lifting and separation of the tubers from the soil with minimum damage.
3. Loading and transporting the tubers.

REVIEW

It is evident that, in the light of recent development in the processing and utilization of cassava tubers in Nigeria, peasant methods of production are inadequate to meet increasing food needs. Furthermore, labour is becoming more expensive, and if cost of production is to be kept to the minimum, mechanized cultivation and harvesting of cassava must be instituted.

Clearing the above-ground parts of the plant

At the time of harvest the vegetative growth above the ground weighs from 5 to 7 tons per hectare depending on cultivar and age. It is necessary to remove the top growth to make mechanical separation of the roots from soil and plant residue easier. Bates¹ suggested the use of a rotary saw or hedge trimmer for the operation of removing top growth. This equipment could be mounted in front of the tractor and powered by a separate engine, and a wide swath-board could be fitted to guide the cut stems clear of the row. Krochmal² suggested the use of a heavy shear in front of a tractor to push the tops down, and a rotary mower at the rear of the tractor to cut the felled tops into small pieces. The preliminary studies reported here tested the latter method which was considered the easier.

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